

REMARKS

The application has been amended and is believed to be in condition for allowance.

Applicants thankfully acknowledge the indication that claims 28-29 recite patentable subject matter and would be allowable if rewritten in independent form.

Applicants also acknowledge with appreciation the indication in the Advisory Action of March 28, 2008 that the amendments of the response dated March 5, 2008 have been entered into the application.

Claims 1-8, 20, 21, 27, and 29 remain in this application. Claim 28 is cancelled without prejudice.

Claim 1 has been amended to recite a metal filling a via hole from a bottommost surface of the via hole to a topmost height of the via hole. Claim 2 has been similarly amended. The amendments to claims 1 and 2 find support in the specification and Figures 1-9 as filed, and introduce no new matter.

Claim 27 has been amended to include the recitations of dependent claim 28, indicated as allowable in the Official Action, and claim 29 has been amended to depend from claim 27. The amendments to claims 27 and 29 introduce no new matter.

The Official Action rejected claims 1-8, 20-21, and 27 under 35 USC 103(a) over HAASE (US 2003/0211724 A1; hereinafter HAASE) in view of DUBIN et al. (US 5,913,147; hereinafter DUBIN).

As to claim 1, it is respectfully submitted that neither HAASE nor DUBIN, individually or in combination, recites a connection plug, defined by a via hole filled with a metal, wherein the metal both surrounds the nanomaterial and fills the via hole from a bottommost surface of the via hole to a topmost height of the via hole, as recited by claim 1 as amended.

In contrast, HAASE discloses in Figures 1 and 2 a via hole that is, at best, only partially filled with a barrier material 34b. The extent of the penetration of barrier material 34b is illustrated in Figures 1 and 2 by a horizontal line cutting across via 24 near the top of via 24 running between dielectric 26, dividing second ends 48 from first ends 44.

Neither HAASE nor DUBIN teaches or suggests that barrier material 34b extends to surround or even make contact with the first ends 44 of the carbon nanotubes 32 extending from the bottom of the via 24 (Figures 1-2). On the contrary, HAASE teaches a via 24 filled with hexagonally packed, multi-walled carbon nanotubes, as stated above (paragraph [0023]; Figures 1-2). There is no teaching or suggestion, either in HAASE or DUBIN, individually or in combination, of via 24 being filled with any other material.

Accordingly, it is respectfully submitted that neither HAASE nor DUBIN, individually or in combination, teaches or suggests a metal filling a via hole from a bottommost surface of the via hole to a topmost height of the via hole, as recited by

amended claim 1. Reconsideration and withdrawal of the rejection are respectfully requested.

It is also respectfully submitted that claim 2, as amended, is non-obvious over HAASE in view of DUBIN for the same reasons as for claim 1, stated above. Therefore, it is respectfully submitted that claim 2 and claims depending therefrom are patentable. Reconsideration and withdrawal of the rejection are respectfully requested.

As to claim 27, claim 27 has been amended to include the recitations of claim 28, indicated as allowable by the Official Action. Accordingly, it is respectfully submitted that claim 27 and dependent claim 29 are patentable. Reconsideration and withdrawal of the rejection of claim 27 and the objection to claim 29 are respectfully requested.

From the foregoing, it will be apparent that applicants have fully responded to the December 6, 2007 Official Action and that the claims as presented are patentable. In view of this, applicants respectfully request reconsideration of the claims, as presented, and their early passage to issue.

In order to expedite the prosecution of this case, it is requested that the Examiner telephone the attorney for applicants at the number set forth below if the Examiner is of the opinion that further discussion of this case would be helpful.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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